Back-Injury Prevention

Leader's safety guide

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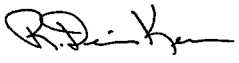
Foreword

This is another in a series of Safety Guides for installation commanders, leaders, and workplace supervisors to help them protect their work forces against accidental losses. The focus here is one of the most common and most costly workplace injuries—back injury.

Applying the methods outlined in this booklet will help leaders mount effective back-injury-prevention programs. It contains ideas developed throughout the Army during the early phases of our back-emphasis effort. New approaches include added emphasis on ergonomics and contributions from a broader spectrum of Army health-care professionals. Learning from earlier loss control successes, we know the Army's back-injury-prevention campaign must be a shared task. It can succeed only through coordinated staff action. Like all important leadership responsibilities, elimination of back-related losses is a "Commander's Program." But commanders lead, they do not administer. Keeping a lid on back-injury costs demands a lot of attention to detail from first-line supervisors and help from the installation's staff specialists. Chronic dollar losses are so great that their reduction will easily return the cost of control.

The ideas and management tools in this pamphlet will help installation officials develop their own unique programs. While effective prevention of back injuries is required by Army and Federal regulations, no single approach is mandated. But most workplaces have room for improvement. Their leaders can profit from the prevention and care strategies outlined in this guide.



R. DENNIS KERR
Brigadier General, USA
Commanding General
U.S. Army Safety Center

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Section I

Program Management

The attack on back injuries cannot succeed unless it is a well-coordinated team effort. The problem and its solution cross many organizational lines—medical, safety, personnel, engineers, and others. Victims are both military and civilian workers, young and old, in white collar and blue collar positions. Addressing only one part of the task or emphasizing only one approach will result in inefficient use of resources and might miss the target completely. All members of the installation risk-management community have a role to play, starting with the commander.

The Team Approach

Commander's role

The commander can support the back-injury-prevention effort in many ways:

- Appoint a staff official to be the commander's representative for back-injury prevention, such as the installation safety manager or command surgeon. The representative acts as the focal point and communication channel for the work of the other responsible staff elements.
- Establish an Installation Ergonomics Committee, if appropriate to the size and mission of the organization. At the very least, safety managers, occupational and physical therapists, ergonomists, and other available medical personnel should be formally linked in a concerted effort.
- Develop a commander's policy statement on back-injury prevention and update it as needed.
- Support actions recommended by the Ergonomics Committee or Safety and Occupational Health (SOH) Council.
- Task the Installation Planning Board to support recommendations forwarded from the Ergonomics Committee or SOH Council.
- Establish appropriate back-injury-prevention training programs for managers, supervisors, employees, and the Ergonomics Committee.
- Involve the Public Affairs Office in publicizing initiatives to increase safety awareness.
- Hold supervisors accountable for their assigned injury-prevention efforts. Job descriptions, performance standards, performance appraisals, and officer efficiency ratings should reflect safety responsibilities per AR 385-10.

Occupational health personnel's role

- The command surgeon identifies medical specialties or persons to coordinate with the back-injury-prevention team.

• Develop local requirements and reviews to assure that occupational health personnel are involved in the planning when potential hazards are introduced into the workplace.

• Assure that occupational health personnel are involved when major changes are initially planned for facilities, operations, processes, or new construction.

• Initiate actions to capture information on occupational stress, illness, injury, or disability that might be related to back complaints.

• When occupational health program personnel identify potential back injury hazards in the workplace, assure that appropriate management and safety personnel are notified in time to initiate required abatement action per AR 385-10.

• When appropriate, assure that any clinical services provided by military treatment facilities are coordinated with the injured employee's private physician.

• Assure that fitness-for-duty evaluations are performed at the request of supervisors and especially before return to work after a back-injury absence. Evaluations are to be performed by medical personnel IAW AR 40-5.

• Assure that occupational health personnel review Department of Labor back-injury-claim records to look for trends, trouble areas, etc.

• Assure that management reviews are conducted for the occupational health program, focusing on back injuries and related lost time, FECA claim rates, and costs.

• Assure back-injury-disability claims are periodically reviewed to assess the adequacy of case management and medical treatment programs.

• Assure medical evaluations are provided by occupational health personnel to support FECA claim controversion.

• Report costs associated with personnel on the long-term rolls and continuation-of-pay to the commander and staff on a periodic basis.

• Assist in training and awareness actions aimed at all employees concerning back-injury prevention.

Resource management's role

- Appoint a resource management representative to support the back-injury-prevention program.
- Develop procedures for implementing the Army Civilian Injury and Illness Compensation Cost Reduction Program.
- Periodically report to the commander and staff costs associated with personnel on the long-term rolls and using continuation-of-pay (back injury cases).
- Advise the commander on ways to fund innovations in the back-injury-prevention program and retraining injured employees.

Safety office's role

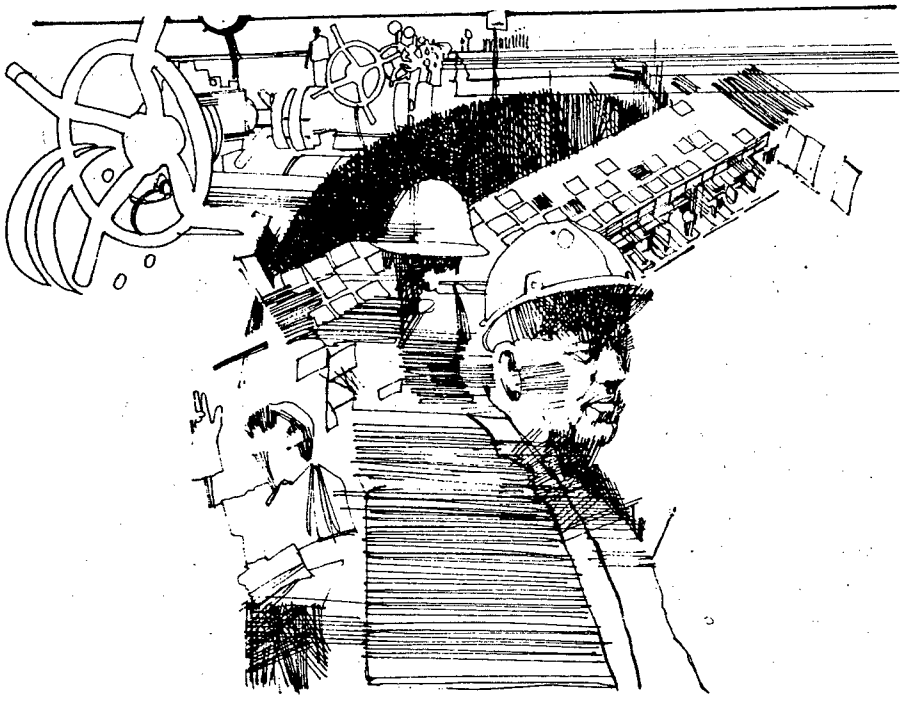
- Serve as the Designated Occupational Safety and Health Official in overseeing and coordinating prevention aspects of the installation back-injury-prevention program.
- Through the Safety and Occupational Health Council or Ergonomics Committee, assure back injury workers' compensation cases and military disabling injury reports are reviewed to identify trends and systemic problems.
- Develop an effective countermeasure program based on analyses of back-injury data.
- Ensure reports of unsafe acts or conditions are responded to in a timely manner and in accordance with AR 385-10 and local regulations.
- Interface with the occupational health staff, civilian personnel officer, workers' compensation administrator, resource manager, and union/labor representative in developing and implementing an effective back-injury-prevention program.
- Include back-injury prevention in the safety block of new supervisors's orientation training.
- Review Job Hazard Analysis (JHA) worksheets prepared by unit leaders and supervisors for potential back-injury hazards.
- Maintain a continuous safety awareness and

communications program on back-injury prevention.

- Maintain a library of available resources and catalogs pertaining to personal protective equipment and ergonomic tools.
- Perform safety inspections of military operations and workplaces. Inspections should include identification and recommendations to eliminate back-injury hazards.
- Investigate selected accidents with/for the supervisor in case of back-related injuries or illnesses as required by AR 385-40.
- Provide feedback to leaders and supervisors on back-injury hazards.

Civilian personnel office's role

- Serve as a key player in the development of an installation back-injury-prevention program.
- Validate workers' compensation back injuries charged to the installation.
- Assist supervisors in controverting back-injury claims.
- Coordinate and maintain close liaison with legal, safety, occupational health, resource management, and union/labor personnel.
- Monitor the number of long-term back-injury FECA cases.



Section II

Leader's Force-Protection Basics

The key to successful leadership, particularly in an era of constant change, is to respond flexibly to unexpected challenges. Effective leaders do this constantly, often through instinct or an undefined decision-making process. The risk-management concept takes these unconscious decision-making methods and applies them systematically to accident prevention.

The Risk-Management Process

• Risk management is a tool that helps leaders make sound decisions in a logical manner. Used in a positive command climate, risk management can become a mindset that governs all missions and activities.

• Risk management enables decision makers at all levels to do exactly what the term says: manage risks.

• Risks that confront managers are training risks, fiscal risks, and safety risks. Safety risk management is a specific type of risk management. Our efforts are directed toward how safety risk management fits into the leader's tool bag.

• In theory, risk management is a five-step process that is easily integrated into the decision-making model. This process lends itself to safety risk management. Rather than advocate safety risk management as a separate consideration, this approach describes it as a process that leaders understand and use instinctively.

Four Simple Rules

These rules are the core of the risk management philosophy:

• **Integrate risk management into planning.** It must be the basis for decision making, not an afterthought or appendage. Deliberate planning, taking into account all risks, options, and feasible controls, helps the leader avoid improvised operations. Early integration is particularly important in the design and selection of procedures, equipment, or facilities because it prevents expensive re-engineering.

• **Accept no unnecessary risks.** The leader who has the authority to accept a risk has the responsibility to protect the work force from unnecessary risks. An unnecessary risk is one that, if eliminated, still allows accomplishment of the organization's mission.

• **Make risk decisions at the proper level.** That's normally the lowest level consistent with resources, authority, and capability. For example, when senior leaders are bogged down in minute-by-minute decisions, the organization is inefficient. When first-line supervisors accept risks that could have catastrophic outcomes, proper control is lost. Therefore, the credible consequences of a course of action determine who should assume responsibility.

• **Accept risks if the benefits outweigh the costs.** When a decision is called for, use risk-management methods to determine the best course of action. It is critical to weigh all the real costs, including long-term effects and legal impact, when making a decision.

Risk-Assessment Process

• **Identify risks.** Step one in applied risk management is to identify hazards. Hazards are any conditions with the potential to cause damage or injury, or decrease your ability to perform your mission. All hazards should be identified before starting a new task.

• **Assess hazards.** Step two is to assess the hazards to determine their cumulative effect on the planned activity. Each hazard is analyzed to determine the probability of its causing a problem and the severity of the consequences should such a problem occur. Exercising judgment on how to eliminate or reduce hazards to lessen the overall risk is inherent in the risk-assessment process. This step concludes with a risk assessment that describes the impact of the combined hazards. The result is a statement that quantifies the risk associated with the operation/mission as extremely high, high, medium, or low. Historical data shows that back injuries are common and costs are inherently high.

• **Make risk decisions.** Step three is to make a risk decision. Leaders weigh the risk against the benefits of

performing an operation. Unnecessary risk can endanger mission accomplishment and subject employees to unnecessary risk of accidents and injuries. Risk decisions are made at a level of management that corresponds to the degree of risk. Guidance should be established as to who makes which risk decisions. For example, low-risk decisions may be made by immediate supervisors, medium-risk decision by middle management (activity/unit), and high-risk decisions by top management (directors/command staff). The commander may elect to have some decisions made at lower levels of management.

- **Implement controls.** Step four is to implement the controls established as a result of steps one through three. Included in this step is leader action to reduce or eliminate hazards. Controls may be as substantial as writing an SOP or as simple as conducting a short safety briefing. Sections IV and V outline strategies for development of workplace controls.
- **Supervise.** Step five is to supervise. Supervision in this sense goes beyond ensuring that people do what is expected of them. It includes following up during and after an action to ensure that all went according to plan, re-evaluating the plan or making adjustments to accommodate unforeseen issues, and incorporating lessons learned for future use.

RISK ASSESSMENT MATRIX

			HAZARD PROBABILITY				
			Frequent	Likely	Occasional	Seldom	Unlikely
			A	B	C	D	E
EFFECT	Catastrophic	I	EXTREMELY HIGH				
	Critical	II		HIGH			
	Moderate	III		MEDIUM		LOW	
	Negligible	IV					

Leadership Safety Basics

Before you can lead a safe work force, or even discuss the workings of the risk-management cycle, it is necessary to set working definitions of some basic terms and concepts. This section takes the ideas in broad Army doctrines and makes them real for the military or civilian workplace.

Army accidents

Army accidents include unplanned events that result in one or more of the following:

- Damage to Army property (including government-furnished material, property, and equipment provided to a contractor).
- Injury or occupational illness to on-duty military or civilian personnel, including nonappropriated fund employees and foreign nationals while in a work-compensable status.
- Injury or illness to non-Army personnel or damage to non-Army property when the Army is responsible.

Root causes of accidents

Accidents can be traced to combinations of errors, materiel failures/malfunctions, and environmental conditions. Almost all of these can be attributed to defects in workplace systems. These defects are directly related to the standards that are designed to control the work process. Note that the same defects that cause accidents can cause the other failures that keep you from accomplishing your mission.

- **Standards defect:** Standards are unclear, or impractical, or just don't exist.
- **Training defect:** Standards exist, but are not known, or the ways to meet them are not known.
- **Leader defect:** Standards are known but are not explained, supported, or enforced.

• **Individual defect:** Standards are known, but are not followed.

Signs of system defects in the workplace

□ When the STANDARD is defective we find—
- Sketchy written procedures (AR, TM, SOP, etc.)
- Sub-standard facilities
- Incapable employees
- Unsuitable material and equipment
- Inadequate support services

□ When the TRAINING is defective we find—
- Too little or misdirected school training
- Little sustainer training
- No formal OJT structure

□ When LEADERSHIP is defective we find—
- Lack of control by direct supervisor/director
- Little authority at mid level
- Low motivation
- Indiscipline
- Inverted priorities
- Poor morale
- Conflict between quality and production

□ When INDIVIDUALS are defective we find—
- Fear/excitement
- Unpredictability
- Overconfidence
- Haste
- Poor attitude
- Effects of alcohol/drugs
- Misjudgment
- Outside distractors

Countermeasure Development

The systems defects that create opportunities for back injuries can be countered. Supervisors can't do it all, but they are in the best position to initiate and monitor corrective actions. Countermeasures are often performance-oriented, such as training and motivation. They might also be environment-oriented. That's the engineering approach to facilities, equipment, and process safety.

To attain and sustain safe performance

- Explain the reasons for the safety rules.
- Develop safe methods of performing each task.
- Be able to demonstrate safe performance of each task.
- Make sure needed tools and equipment are available and used.
- Assign employees tasks that are within their abilities.
- Promote teamwork among employees.
- Enforce rules and regulations.
- Prove your commitment to safety; set a good example.

To attain a safe workplace

- Identify back injury hazards using the risk management model.
- Assess the risk and assign a priority.
- Fix the cheap and easy ones quickly.
- Plan for the abatement of tough, expensive hazards.
- Develop interim measures to reduce the risk until abatement.
- Track the resourcing and scheduling of abatement projects.
- Monitor the effectiveness of the countermeasures.
- Be persistent.

This is a simple outline of approaches to countermeasure development. Sections IV and V contain a more detailed step-by-step description of worker- and workplace-oriented corrective actions.

Back to Basics—Fundamentals of Safe Leadership

- **Know your workers.** Know their training status and their qualifications. Test knowledge of new employees, regardless of whether or not they have been previously certified in a certain area. Consider individual physical abilities when assigning job tasks.
- **Know the rules.** Be aware of the safety precautions that fit your workplace. Know your equipment, its capabilities, and its condition. Study the publications that are available to guide you.
- **Anticipate risks.** Seek advice and information on new missions and processes.
- **Encourage your workers.** Be receptive to the ideas of your workers. They are a valuable source of first-hand knowledge. They want to help you prevent back injuries.
- **Assign sufficient resources.** Get the people and equipment needed to do the job safely. Do not allow false economies.
- **Follow up.** See that your workers use the safeguards provided. Routinely spot check their work. If necessary, enforce safety rules through disciplinary action.
- **Set the example.** Demonstrate safety in your own work habits and personal conduct. Don't undercut your instructions in the eyes of your workers.
- **Investigate every report or complaint.** There is something to learn from them all, however slight. Develop corrective measures to prevent similar accidents. Where minor back strains go unheeded, major accidents strike.

• **Use the back-injury-prevention team.** Your installation has support elements in the medical, safety, and engineering shops. Their purpose is to help you get your job done.

• **Accept responsibility.** Accident prevention is one of your prime obligations to your workers and to the Army.

Installation Profile

One of the most important steps in establishing a special emphasis program at your installation is to retrieve an installation profile from the Army Safety Management Information System (ASMIS). (Instructions for pulling an installation profile can be accessed through E-Mail under the Conference section titled "CAPP.") The installation profile will provide information vital to identifying problem areas at your installation. The profile will include the following key data elements:

- Extent of injury (first aid, lost time, no lost time, death)
- Nature of injury (i.e., back strain, amputation, fracture)
- Anatomical location (i.e., right knee, face, scalp)
- Source of injury (i.e., stairs, ladder, forklift)
- Cause (i.e., strike against, slip, trip)
- Age of injured worker
- Sex of injured worker

The ASMIS analysis features allow manipulation of this data to create matrices, sorts, and other analytical tools.

Once the profile has been pulled and analyzed, you will know not only what types of injuries your installation is experiencing, but how frequently they are occurring and what portion of your work force is experiencing those injuries.

Section III

Performance-Oriented Actions

This section discusses those back-injury countermeasures that attempt to reduce injuries by changing the behavior of workers. In general, the two keys are training—to provide needed information—and awareness—to keep the information fresh in the workers' minds. Performance-oriented actions have definite value, but they must not be overemphasized. Addressing human behavior often seems like a low-cost countermeasure, but in the long run the need to constantly

retrain and reinforce behaviors can sometimes be far more expensive than engineering fixes.

Training

The law that establishes Federal workplace safety programs requires that all levels of personnel, from the production line to top management, receive the safety training they need. That includes the proper type of back-injury-prevention training.

Not everyone needs to learn how to lift 105mm gun tubes, and most people don't design workplace materiel-handling equipment. But everyone who could sustain a back injury, or who supervises a work force, needs to know the basics. Four levels of training should be available on every large installation, either in-house or through outside resources.

- **Work-force training.** The most obvious need is for general work-force training. It can have several dimensions, including task-specific training for those whose jobs require substantial lifting, and wellness training for virtually everyone. Training for people who have already experienced a back problem must be much more individualized than for those who have not shown any sign of trouble. All back-injury training must be kept under close medical supervision.
- **Supervisor training.** A second type of training must be provided for supervisors, especially those responsible for work areas that produce a lot of injuries. Supervisory courses must include prevention-oriented information, as well as the skills needed to manage injured employees.
- **Staff-specialist training.** Staff specialists must have adequate background, either through their professional training or through Army-sponsored courses, to help managers and supervisors execute effective programs. The various staff elements—medical specialists, personnel

specialists, safety managers, and others—can be organized as an ergonomics committee or a subcommittee of the Safety and Occupational Health Council with ad hoc assignment to back-injury issues. Whether formally chartered or not, the staff players need to be up-to-date in the back-injury area so they can contribute to the installation effort.

- **Commander training.** Installation and troop commanders need to know the broad picture, even if their organizations aren't a back-injury hot spot. When back injuries are identified as a driving force in cost, inefficiency, or mission distraction, top leadership will need to get smart on backs. The staff is the commander's first resource for desk-side learning. When the situation calls for it, more formal education can be arranged through DA staff agencies.

Training, as a countermeasure, is certainly going to remain a critical part of the back-injury-prevention program. But training must target the correct problems—skill and knowledge deficiencies. A highly trained and highly motivated worker will suffer a back injury if the job is unrealistic or the workplace is badly engineered. In such cases, the considerable cost of additional training would be wasted.

The hardest part of managing back-injury training is quality control. There are honest disagreements in the medical community and a lot of different approaches to workplace prevention. Many commercial firms are involved in the production of courses, audiovisuals, and prevention packages. Many of them are effective; in fact, one problem is that most ideas seem to work—at first. Evaluating the various products and programs is the task of specialists, especially from within the Army medical community. As the Army's efforts spread, producing better historical data, a clearer picture of the most efficient long-term approach will develop. In the meantime, the more conservative and lower-cost strategies should get the first look.

Tailgate Training

What is a tailgate session? The name is expanded from the training delivered to a work crew while they sit on the tailgate of a truck. You don't need the truck, just a few minutes for a short safety briefing while your people wait to start an upcoming job. The use of this type training for materiel-handling personnel has obvious advantages:

- It shows that safe performance is one of the work standards.
- It allows sharing of safety information about the particular task at hand.
- It can be done with minimal planning during "wasted" minutes.
- It shows supervisory support of safe activities.
- It can be keyed to specific individuals or work groups without requiring entire unit participation.
- It lends authenticity to the safety program by keying on the immediate task.
- It raises safety awareness of personnel.

Implementation

- Identify topics that are pertinent to the crew's materiel-handling task.
- Develop hip-pocket tailgate sessions on selected back-injury prevention topics.
- Combine several short topics if you have several minutes to fill.
- Distribute tailgate sessions to team leaders and discuss when and where they are to be used (a few sessions are included in this publication).
- Have individuals from the command group or element occasionally conduct tailgate sessions to reiterate and reinforce their concern for safety.
- Continually revise and update the tailgate sessions to ensure applicability.

Tailgate session outline 1: Planning a lift/carry

Before beginning the task of lifting and/or carrying an object from one location to another, there are a few simple points to keep in mind:

- Do you know your personal safe-lifting limit?
- Do you know HOW to safely lift the object?
- Do you know the weight of the object?
- To lift the object, do you have to reach over another object?
- To lift the object, do you have to twist your torso?
- Is materiel-handling equipment needed?
- Is the object oversized so that a two-person lift is required?
- What type of surface does the object have?
- If the object has a rough surface or splinters, do you have the appropriate gloves to wear?
- Does the object have handles to assist with the lift?
- Is the path of travel clear?
- Is the spot where you intend to set the object free from obstruction and large enough for the object?
- Is the spot between shoulder and waist height?

Tailgate session outline 2: Materiel-handling equipment

The Army has gone to a lot of expense to make sure you have the materiel-handling equipment (MHE) you need to move heavy items. Your responsibility is to use the equipment, especially powered equipment, as it is intended to be used. Otherwise the MHE solution will become part of the safety problem.

- A resource that should never be overlooked is the "two-person lift" method. Many lifting tasks, such as positioning items on MHE, can be safely accomplished only by seeking the help of a co-worker. If the object is too heavy for you to lift safely, do NOT hesitate to ask for help. Asking for help will

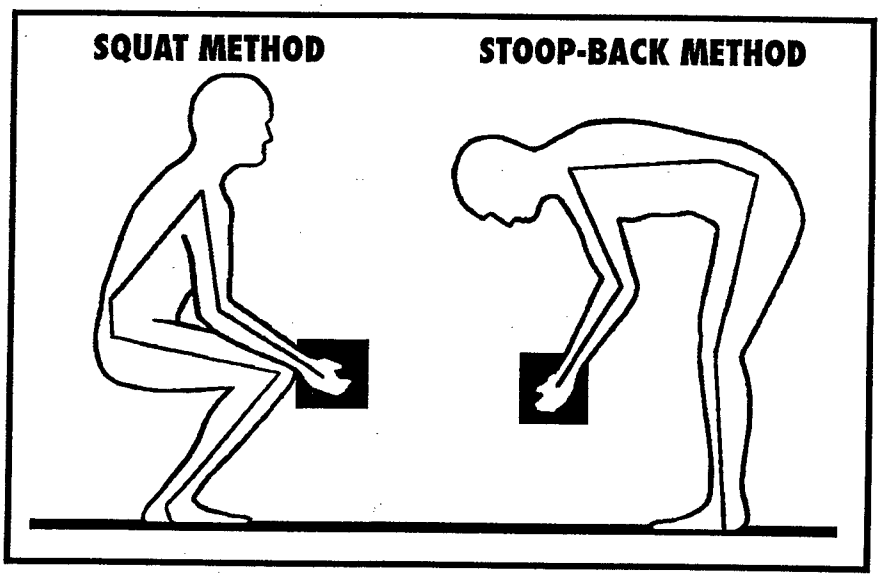
NOT make you appear "weak." It will make you appear sensible.

- MHE doesn't have to be elaborate or expensive; simple unpowered carts and spring-loaded lifts can do a lot to help you out. Anything that prevents lifting down near the floor or up above your shoulders really pays off.
- You can help create a better workplace by finding new ways to use conveyors, lifts, and carts to eliminate strenuous materiel handling. It isn't lazy to come up with new applications, it's just smart.
- Knowing when to ask for assistance and when to use the proper type of MHE is crucial in all materiel-handling operations.

Tailgate session outline 3: Correct lifting procedures

There are two correct methods of lifting: the squat method and the stoop-back method.

- The squat method of lifting is for the uninjured employee who is in good physical condition and has strong legs, hips, and lower back. It involves squatting close to the object and, keeping the back straight, lifting the body and the object,



letting the legs and buttocks do the work.

• The stoop-back method is for the injured employee who has a weak lower trunk, hips, legs, or knees. Before using the stoop-back method, an employee *MUST BE CLEARED BY A COMPETENT MEDICAL AUTHORITY* to lift in this manner. The stoop-back method has restrictions that *MUST* be followed. This method is to be used for—

- Lifting 25 pounds or less.
- Five or fewer repetitions.

This method of lifting is to be used in a worker's daily routine where an *OCCASIONAL* lift is necessary (i.e., picking up a box of file folders or supplies). Unless a doctor recommends it, an injured employee should not be assigned to the same tasks and situation that triggered a back complaint. An injury is a clear signal that it's time to re-evaluate the design of the workplace and procedures. Supervisors must warn returning workers not to try to take up where they left off.

Tailgate session outline 4: Correct carrying procedures

Once you have retrieved an object and need to carry it to another location, follow these simple guidelines for a safe carry. The object should be carried—

- As close to waist height as possible.
- As close to your trunk as possible.

The object should be small enough that you can hold it comfortably without overextending your arms. If it is oversized, do not attempt to carry it alone—get help!

Tailgate session outline 5: Knowing your lifting limitations

Knowing and recognizing your personal lifting limitations is crucial in protecting your back from injury. There are several factors you must keep in mind.

• Your personal physical condition has a direct bearing on your lifting ability. If you have a weak lower back, hips, legs, or knees, your lifting ability will be diminished.

• Age is also a factor. As your body gets older, your lifting ability will be reduced. Accepting this change is important to safeguarding a healthy future.

• Workers who stay in good physical condition and exercise regularly will be able to lift safer and avoid an injury.

Supervisors must assure that, before reporting to work, materiel handlers are screened for personal lifting limitations by a competent medical authority. Costs of screening are a normal part of the occupational medicine service. Screening protects the worker from injury and the Government from claims.

Knowing the requirements of the job and matching the right job to the right person is key to fewer back injuries, lower compensation costs, and secure accomplishment of the mission.

Tailgate session outline 6: Materiel storage

Correct storage of materiel is critical to a safe workplace. Knowing where and how to store materiel will not only safeguard against back injuries, it will also make for a more efficient operation.

• When possible, all materiel should be stored between shoulder and knee height of the average person.

• One mistake most often made in storing materiel is placing heavy supplies or equipment near the floor. By doing this, the worker is forced to squat down to retrieve the object and lift it farther than if it were stored at a higher location. Heavy supplies and equipment should be stored as close to waist height as possible. Storing at this height will make retrieval easier and will keep the lifting distance to a minimum.

• Lightweight items should be stored at the harder-to-

reach locations. Therefore, when the object must travel a farther distance, the worker is not subjected to the stress and strain of lifting a heavy object that same distance.

- An excellent aid in materiel storage is color coding. By painting the recommended, or safe, heights of storage bins a bright yellow, workers are constantly reminded not to store items above or below those limits. Therefore, even when a worker is in a hurry and may not remember the recommended storage heights, the bright yellow paint will serve as an excellent reminder.
- Another important aspect of materiel storage to remember is easy retrieval. Cluttered or cramped storage areas make it more difficult for the worker to make a retrieval. Storage areas/bins should be easily accessible and free from blockage. Bins should be kept neat and orderly. Storage bins should be in a low-traffic area. Forklifts and high pedestrian traffic can impede storage/retrieval activities and increase the hazards.

Awareness Campaign

One of the most important aspects of any accident prevention program is command support. Equally important is to make the work force aware of this support. The most direct and successful way to accomplish this is to conduct an awareness campaign. This campaign should cover all aspects of the problem:

- WHAT the problem is
- HOW it is affecting the mission/work force
- WHY it is happening
- HOW it can be prevented

Commanders's letter

The first major step in the awareness campaign is to publish a

letter to the work force from the installation commander, emphasizing his or her support for the program. The easiest way to accomplish this is to have the letter published in the installation newspaper.

Articles

Articles on the program should also be published periodically in the installation newspaper. "Good news" stories should be included along with prevention efforts and background information.

Posters

Safety posters should be obtained and displayed in worksites and break areas. If there are specific units or job sites that have experienced a noticeable number of injuries, care should be taken to assure that these areas receive special attention.

Promos

Small table-top promotional items (such as safety tips, injury prevention information) can be placed on tables in break areas. These promotional items can contain generic information but will be much more effective if the information relates directly to that specific work area (i.e., lost-time back injuries for that area for the last fiscal year). Other promotional items such as stickers and flyers can also be used.

Safety meetings

Safety meetings should be targeted at the particular problem area (i.e., back injuries). When possible, the occupational health officer, occupational health nurse, or the occupational/physical therapist should be included as a guest speaker in the safety meetings.

Section IV

Workplace-Oriented Actions

Fixes that involve real, tangible changes in equipment, facilities, or task design are the most reliable answer to back injuries. OSHA has estimated that as many as one-third of all back-injury claims could be prevented through modern workplace design. The initial costs of engineering-out back injuries can be high, but the cost of working in obsolete workplaces is much higher.

Materiel-Handling Equipment

Before allowing an employee to operate materiel-handling equipment (MHE) of any type, there are a few simple points to remember:

- Is the employee properly trained and licensed to operate that particular MHE?
- Does the employee know safe operating procedures for that MHE?
- Does the employee know the limitations of the MHE?
- Is the area free of obstructions, and is there ample room to operate the MHE?
- Has the MHE been properly maintained?
- Is the MHE in good working order?
- Is the operator knowledgeable of the materiel he or she will be moving?

Types of MHE

There are numerous types of MHE in the Army inventory. Forklifts (warehouse and rough terrain), stock selectors, and many types of cranes and hoists are readily available to assist in materiel-handling operations.

- Some packing/unpacking operations are equipped with pallet "unitizers." The "unitizer" is a tubular steel frame equipped with heavy-duty springs calibrated to bring the pallet to the most convenient loading/unloading height so workers can handle heavy items with minimum lifting, bending, and squatting.
- Another handy piece of MHE for packing/unpacking operations is an apparatus that allows large packing crates and cartons to be tilted to an angle that makes loading and unloading easier for the worker. The angle of tilt can be changed as the carton is loaded or unloaded. By tilting the crate to an angle that is suitable for the worker (based on the person's height), the worker is subjected to minimum strain and bending.

• By installing small hoists in maintenance areas that normally require the worker to pick up and move a heavy piece of equipment from one location to another, the exposure to potential back injuries can be greatly decreased.

Ergonomics Committee

An installation ergonomics committee can be used successfully to eliminate and prevent ergonomics-related hazards (i.e., back injuries, cumulative trauma disorders). Committee members should include (but not be limited to)—

- Occupational health representative.
- Health-care providers and therapists.
- Civilian-personnel representative.
- Safety representative.
- Engineering and Housing representative.
- Manufacturing or production managers.
- Shop foreman/representative.
- Industrial hygienist.
- Union/labor representatives.

The committee visits worksites on the installation and evaluates each work station for ergonomic hazards. It then makes recommendations for necessary corrections and works with installation shop personnel in determining the best "fix" for each problem. Copies of the committee's findings and abatement results are sent through the chain of command of the area evaluated to the installation commander's representative. The committee can present a progress report to the Safety and Occupational Health Council at the quarterly meetings.

The post newspaper is an excellent way to inform employees and build command support for your safety program. The following article, written by the Infantry Center Public Affairs Office and published in the Fort Benning *Bayonet,* is a good example of a press release that could be

created at any installation. It also is a good description of an ergonomics committee at work.

Fort Benning may face $5,480-a-day civilian injury bill

The cost of civilian injuries, Armywide, is approaching $1 million a day. Beginning in October, installations will begin paying their share. For Fort Benning, that cost could come to about $5,480 a day.

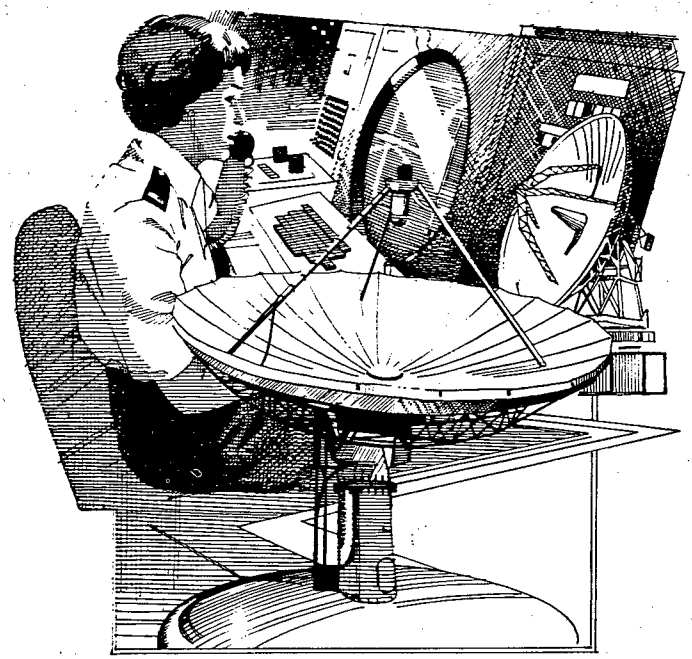
That's an expense that would come out of the operating budget of units and directorates on post.

To find ways to reduce that expense, a Civilian Injury Reduction Team (CIRT) was formed. Its goal is to reduce civilian injuries by 50 percent. During the first three quarters of the current fiscal year, the team's been on track in identifying and eliminating systemic hazards from the workplace.

Assisting the CIRT is an ergonomics team whose goal is to fit the work environment to the people who do the work. Jim Ozley, the team leader, said his team is available to come to any work place on post to check for hazardous conditions and determine ways to adapt the work place to the people.

He noted the reduction of civilian injuries has command support, the commanding general's resolution for 1992 being "Safety—First Priority at Fort Benning."

Ozley said the commanding general stresses prevention of civilian injuries to demonstrate caring leadership, to enhance civilian resource conservation, and to retain continuity in the civilian work force by reducing lost time from job-related injuries.



Section V

Prevention and Intervention Plan of Action

This section contains a collection of ideas gathered from successful back-injury programs and a number of benchmarks you can use to evaluate your installation or unit progress. Not all ideas or standards of practice apply Armywide, but there is enough generic guidance here to help execute and fine-tune existing programs. These ideas suggest what can be done and how it can be started. Who should do

each task is a tougher question, one that can be answered only by the installation commander when resources are allocated and priorities are set.

Back-Safety Idea Bank

The Back-Safety Idea Bank gives useful guidance in nine different areas of program development. The individual ideas have been tried by safety and health workers at various installations Armywide. No idea fits all situations, and there are a lot of other ways available. Using this idea bank will provide a concrete beginning. Additional items can be added as you develop a program tailored to your needs.

Management

- Analyze back injuries thoroughly—look for statistical description and cause factors.
- Have an identifiable back-safety program.
- Have a responsible action officer.
- Have goals and objectives down the chain of command.
- Use the full system spectrum for back-injury controls.
- Shift back-injury prevention from reaction to prevention.
- Involve command group.
- Support controversion of inappropriate back-injury claims.
- Use employee suggestion programs to target back injuries.
- Ensure involvement of industrial hygiene and medical activities in the program.

Resourcing

- Use the Planning, Programming, and Budgeting System for long-range funding.
- Use the Quick Return on Investment Program.

- Use Total Quality Management process-action teams.
- Tie into productivity gains to justify the program.
- Use intercommand teams to develop programs.
- Test ideas on a small scale.
- Use cost/benefit analysis effectively.
- Fully cost out back injuries.
- Use vendors to suggest remedies and do staff work.

Job design for back safety

- Form and use an Ergonomics Committee to—
  - -Conduct back safety review of all new jobs.
  - -Redesign all existing jobs starting with high risk.
  - -Test new design ideas.
  - -Introduce, teach, and interpret NIOSH standards.
- Apply the safe-lift standard to each task.
- Use MHE effectively.
- Use vendors to suggest MHE applications.
- Ensure purchase of ergonomically correct equipment and tools.
- Use simple job aids (manhole lifters, carboy tilters, etc.)
- Evaluate use of computer programs to assist in job back-safety design.

Motivation for back safety

- Ensure all groups have behavioral standards.
- Set measurable standards for key tasks.
- Involve command in accountability.
- Use plenty of incentives.
- Use punishment judiciously within the intent of Army and civilian personnel regulations.
- Use personal testimony on back-injury impact to motivate.
- Get the MACOM to focus on back safety.
- Connect back injuries to operating costs and chargeback.

Training for back safety

- Use an identity symbol to tie training together.
- Identify training targets by assessing risks and incident histories.
- Avoid training in response to motivation problems.
- Include a motivation component in training.
- Train managers, supervisors, and operators.
- Use defined behavioral objectives for training design.
- Customize lifting techniques to the person and task.
- Train supervisors in basic ergonomics.
- Use commercial and Army Safety Center materials to enhance training.
- Conduct back-safety training in shops to reduce costs.
- Include actual practice in training.
- Train for off-duty back safety as well as on-duty.
- Provide back-safety refresher/remedial training as needed.
- Ensure maximum economy in back-safety training.

Media programs for back safety

- Use identity symbols to tie to training and other media.
- Address different messages to operators and managers.
- Base on behavioral standards.
- Use multimedia.
- Use media intentionally to sustain training effect.
- Deliver media through the chain of command.
- Use media to motivate.
- Experiment with commercial programs like "Gotta Sore Back." Share your experiences.

Conditioning and wellness for back safety

- Institute a stretching program for key groups.
- Institute special conditioning for selected groups.
- Emphasize back wellness as an aspect of wellness.
- Have doctors inquire about symptoms of incipient back

conditions during preplacement and surveillance exams.

- Use training/media to discourage risky exercises.
- Encourage formal civilian employee fitness programs.
- Train employees in personal ergonomics (lumbar pads, etc.)

Rehabilitation

- Arrange for professional rehabilitation services.
- Arrange a light-duty program for back-injured personnel.
- Use job reassignment to get people back to work.
- Use ergonomic redesign to get an individual back to work.
- Provide access to orthopedic treatment.

Preplacement screening

- Avoid any action suggesting unlawful discrimination.
- Take effective medical histories.
- Counsel on back-safety requirements.
- Define proper job requirements.
- Examine as far as possible for back injuries.
- Use contract physicians when MEDDAC support is missing.

Standards of Good Practice For Back-Safety Programs

The following standards represent accepted good practice, not necessarily mandated requirements. Measuring your effort against them will help you evaluate your back-safety program. Because of the frequency of high-cost back injuries, it will normally be cost effective for organizations to meet these standards. The savings that result should more than offset the material and personnel resources demanded.

Program management

- The back-safety program is identified as a visible effort, with a responsible action officer.
- The action officer has received specialized back-safety training from responsible sources, appropriate for the level of responsibilities.
- The responsible action officer systematically maintains current information on developments in the back-injury-prevention field, including continuing education.
- The back-safety program and its components are integrated with other safety-program elements such as the Civilian Accident Prevention Program and training programs.
- Performance goals and objectives are established for the back-safety area.
- The goals include program quality measures, as well as statistical measures.
- The goals are ambitious but achievable.
- Performance is measured against goals at least twice a year.
- Back-injury data is analyzed on a scale, i.e., installation or MACOM, that allows reliable statistical and cause factor data.
- The data supports targeting of countermeasures by organization, job type, activity, and so forth.
- The data can be used to identify risk groups by specific back injury type factors.
- Analysis is done for systemic causation.
- Selected back injuries are investigated in depth to assure data reliability.

Back-injury training and education

- Specialized training is delivered to identified populations on the installation.
- Training is customized for the target group.
- Installation leaders are trained in back safety management tasks.
- Supervisors are trained in prevention program

administration and safe workplace operation.

- Workers are trained in specific back protection techniques.
- All training follows logically from the results of back injury data analysis.
- Selected high-risk groups, such as nurses and firefighters, are identified for specialized training in injury prevention.
- Training addresses motivation as well as skills and knowledge.
- Motivation is tied to mission, professionalism, and personal considerations.
- Trainees are taught the rewards and consequences that follow from self-protection performance.
- Worker-level training includes actual practice in safe procedures.
- Training programs are delivered at the lowest cost consistent with effectiveness.
- Army sources of training are used when possible.
- Training time is devoted to essential tasks and critical skills.
- When possible, back-injury training is conducted on the job site to provide realism and reduce down time.
- Publicity points out back-injury-prevention successes and failures, as appropriate.
- Cause factors and consequences are publicized to deter sub-standard performance.

Wellness and conditioning

- Back-safety materials are integrated into the overall employee "wellness" effort as an important contribution to well being.
- Workers in selected high-risk occupations (such as firefighters, nurses, and plumbers) are offered approved back-conditioning programs conducted by personnel qualified by experience or education.

• All personnel are advised of the value of conditioning in protecting against back injury.

Rehabilitation

• Workers suffering from back injury are entered in rehabilitation programs conducted by competent medical sources.

• The personnel office actively seeks to support light-duty and job-reassignment options to encourage early return to work.

• Supervisors, personnel staffs, and rehabilitation personnel will cooperate in returning injured employees to work.

Preplacement screening

• Prospective new employees are medically screened for back-safety factors.

• Health histories are taken regarding existing back-related problems.

• Medical examinations for jobs with medium and high risk of back injury emphasize back health.

Section VI

Reemployment and Light Duty

After a back injury has occurred, the fight to control mission impact and dollar losses has not been lost. New efforts must be made to minimize the impact on the soldier or worker, and to prevent long-term loss of their valuable contribution. By now the team approach should seem familiar. Once again, it is the key to bringing injured people back to the workplace and preventing further injury. After an employee is injured, a greater part of the responsibility falls to the medical part of the team.

Occupational health officer tasks

- Ensure clinical services relating to back injuries are coordinated with the employee's private physician.
- Ensure employees who suffer a back injury on the job are evaluated by occupational health personnel prior to reporting to the physician of their choice.
- Ensure the occupational health facility provides rehabilitative services for injured employees.
- Ensure fitness-for-duty evaluations are performed by appropriate medical personnel on all employees who suffer a back injury.
- Ensure occupational health personnel assist management and safety personnel in individualized worksite accommodation planning for those employees returned to work after an injury.
- Ensure that occupational health personnel communicate with local health care providers regarding availability of light-duty programs and care management for those employees injured on the job.
- Ensure the occupational health program is involved in worksite evaluations for encumbrances that may preclude handicapped and disabled employees from gaining optimal access, mobility, and performance at the worksite.
- Ensure occupational health program personnel communicate with line supervisors and personnel officers to facilitate early return to work for injured employees.

Safety representative tasks

- Ensure the safety program is involved in worksite evaluations for encumbrances that may preclude handicapped and disabled employees from gaining optimal access, mobility, and performance at the worksite.
- Ensure safety program personnel assist management and occupational health program personnel in worksite accommodation planning for those injured employees

returned to work after an injury.

- Ensure safety program personnel assist supervisors in briefing injured employees, upon return to work, on measures to prevent recurrence of injury.

Civilian personnel office

- Publish a light-duty regulation.
- Ensure all CPO branches cooperate with the workers' compensation program administrator, occupational health program personnel, and safety program personnel in facilitating for the injured employee's return to work.
- Ensure all CPO branches identify (or create) positions designated as light-duty assignments.
- Ensure all CPO branches assist in developing a re-training program for injured employees who cannot return to the same job.

Resource management representative

- Assist in identifying and obtaining necessary resources to facilitate re-training of injured employees who cannot return to the same job.
- Assist in identifying and securing resources for special programs that will allow injured employees to return to work (same job).
- Assist in identifying and obtaining necessary resources for re-design of workstation or equipment to facilitate injured employees' return to work.
- When cost effective, assist in obtaining resources for purchase of special equipment to assist injured employee in return to work.

Supervisor

- Demonstrate concern for injured employees.
- Notify the Workers' Compensation Program

Administrator (within 2 working days or less) when an employee returns to work after lost time.

- Maintain a list of light-duty positions with complete duty descriptions.
- Encourage return to work as soon as possible and be able to articulate the employee benefits in doing light duty.
- When an injured employee returns to work, brief him or her on measures to prevent recurrence of injury/illness.

Engineer

- Assist safety program personnel and occupational health personnel in re-design of workstation/equipment to facilitate return to work of injured employees.
- Assist resource management personnel and occupational health personnel in determining specifications for purchase of new equipment to facilitate return to work of injured employees.
- Assist civilian, occupational health, and safety personnel in changing worksites, work processes, and equipment design in order to designate specific jobs as light-duty positions.

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- AR 385-40: Accident Reporting and Records
- AR 40-5: Preventive Medicine

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- Accident Prevention Manual for Industrial Operations
- Supervisors Safety Manual
- Supervisors Guide to Human Relations

- Making the Job Easier/An Ergonomics Idea Book

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- Chapter 810, Injury Compensation, 2 October 1986

NIOSH

- Work Practices Guide for Manual Lifting, publication 81-122, NTIS, 5285 Port Royal Road, Springfield, VA 22161

U.S. Army Safety Center

- Army Installation Key Action Packet
- Forklift Package
- ABC - Army Back Complaint Packet
- Other safety communication products, ATTN: CSSC-IM (Distribution), Fort Rucker, AL 36362-5363

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